

The Claims

1-23. (Cancelled)

24. (Previously Presented) A method for interfacing with multiple surfaces within a computer-aided drawing environment, comprising:

determining that a first surface of a drawing comprises a first plurality of curves constituting a $P \times 1$ surface condition, a $P \times 1$ surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than zero;

determining that a second surface of a drawing comprises a second plurality of curves constituting a first $N \times M$ surface condition, a first $N \times M$ surface condition being defined by a number of third curves equal to N and a number of fourth curves equal to M , wherein N and M are integers greater than one;

converting the $P \times 1$ surface condition of the first surface into a second $N \times M$ surface condition to match the $N \times M$ surface condition of the second surface, the second $N \times M$ surface condition being defined by a number of fifth curves equal to N and a number of sixth curves equal to M , wherein N and M are integers greater than one;

constructing an $N \times M$ surface under the second $N \times M$ surface condition; and

modifying the second $N \times M$ surface to edit a drawing.

25. (New) The method of Claim 24, wherein converting the $P \times 1$ surface condition of the first surface into the second $N \times M$ surface condition further comprises generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of the first surface and compatible with the number of first curves and the only one second curve that define the $P \times 1$ surface condition.

26. (New) The method of Claim 24, wherein converting the $P \times 1$ surface condition of the first surface into the second $N \times M$ surface condition further comprises replacing the $P \times 1$ surface condition with the second $N \times M$ surface condition.

27. (New) The method of Claim 24, wherein converting the $P \times 1$ surface condition of the first surface into the second $N \times M$ surface condition further comprises generating an $N \times M$ surface condition defined by the third and fourth curves such that the third and fourth curves are defined by mathematical equations all having an order no greater than mathematical equations defining the first and second curves.

28. (New) The method of Claim 24, and further comprising processing the first curves and the second curve so that each one of the first curves and the second curve are compatible with each other of the first curves and the second curve.

29. (New) The method of Claim 24, and further comprising editing the drawing, at least in part, by modifying additional surfaces having the first $N \times M$ surface condition of the second surface.

30. (New) A method for interfacing with a surface within a computer-aided drawing environment, comprising:

determining that a first surface of a drawing comprises a first plurality of curves constituting a $P \times 1$ surface condition, a $P \times 1$ surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than one;

in response to determining that the plurality of curves constitute a $P \times 1$ surface condition, converting the $P \times 1$ surface condition into an $N \times M$ surface condition by generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of the first surface and compatible with the number of first curves and the only one second curve that define the $P \times 1$ surface condition, the $N \times M$ surface condition being defined by a number of third curves equal to N and a number of fourth curves equal to M , wherein N and M are integers greater than one, wherein each of the third and fourth curves are of the same mathematical degree as the first and second curves to be compatible with the first and second curves;

constructing an $N \times M$ surface under the $N \times M$ surface condition; and
modifying the $N \times M$ surface to edit a drawing.

31. (New) The method of Claim 30, wherein converting the $P \times 1$ surface condition into the $N \times M$ surface condition further comprises replacing the $P \times 1$ surface condition with the second $N \times M$ surface condition.

32. (New) The method of Claim 30, wherein converting the $P \times 1$ surface condition into the $N \times M$ surface condition further comprises generating an $N \times M$ surface condition defined by the third and fourth curves such that the third and fourth curves are defined by mathematical equations all having an order no greater than mathematical equations defining the first and second curves.

33. (New) The method of Claim 30, further comprising processing the first curves and the second curve so that each one of the first curves and the second curve are compatible with each other of the first curves and the second curve.

34. (New) The method of Claim 30, further comprising editing the drawing, at least in part, by modifying additional surfaces having the first $N \times M$ surface condition.

35. (New) An apparatus for interfacing with a surface within a computer-aided drawing environment, comprising:

a software program stored on a computer readable medium and operable, when executed on a processor, to:

determine that a first surface of a drawing comprises a first plurality of curves constituting a $P \times 1$ surface condition, the $P \times 1$ surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than zero;

determine that a second surface of the drawing comprises a second plurality of curves constituting a first $N \times M$ surface condition, a first $N \times M$ surface condition being defined by a number of third curves equal to N and a number of fourth curves equal to M , wherein N and M are integers greater than one;

convert the $P \times 1$ surface condition of the first surface into a second $N \times M$ surface condition to match the $N \times M$ surface condition of the second surface, the second $N \times M$ surface condition being defined by a number of fifth curves equal to N and a number of sixth curves equal to M , wherein N and M are integers greater than one;

generate an $N \times M$ surface under the second $N \times M$ surface condition; and
modify the generated $N \times M$ surface.

36. (New) The apparatus of Claim 35, wherein the software program is further operable to convert the $P \times 1$ surface condition of the first surface into the second $N \times M$ surface condition by generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of the first surface and compatible with the number of first curves and the only one second curve that define the $P \times 1$ surface condition.

37. (New) The apparatus of Claim 35, wherein the software program is further operable to replace the $P \times 1$ surface condition with the second $N \times M$ surface condition.

38. (New) The apparatus of Claim 35, wherein the software program is further operable to convert the $P \times 1$ surface condition of the first surface into the second $N \times M$ surface condition by generating an $N \times M$ surface condition defined by the third and fourth curves such that the third and fourth curves are defined by mathematical equations all having an order no greater than mathematical equations defining the first and second curves.

39. (New) The apparatus of Claim 35, wherein the software program is further operable to process the first curves and the second curve so that each one of the first curves and the second curve are compatible with each other of the first curves and the second curve.

40. (New) The apparatus of Claim 35, wherein the software program is further operable to modify additional surfaces having the first $N \times M$ surface condition.

41. (New) A system for interfacing with a surface within a computer-aided drawing environment, comprising:

a computer system having a display unit and an input device;

a computer readable medium coupled to the computer system, the computer readable medium comprising a software program operable to:

determine that a first surface of a drawing comprises a first plurality of curves constituting a $P \times 1$ surface condition, the $P \times 1$ surface condition being defined by a number of first curves equal to P and only one second curve, wherein P is an integer greater than one;

convert the $P \times 1$ surface condition of the first surface into a $N \times M$ surface condition, the $N \times M$ surface condition being defined by a number of third curves equal to N and a number of fourth curves equal to M , wherein N and M are integers greater than one, the third and fourth curves mathematically filling the space of the surface plane defined by the first curves and the only one second curve;

construct an $N \times M$ surface under the $N \times M$ surface condition; and

enable edits to the drawing, at least in part, by enabling modifications to the constructed $N \times M$ surface.

42. (New) The system of Claim 41, wherein the software program is further operable to convert the $P \times 1$ surface condition of the first surface into the $N \times M$ surface condition by generating at least one auxiliary curve that is substantially continuous with any adjoining surfaces of the first surface and compatible with the number of first curves and the only one second curve that define the $P \times 1$ surface condition.

43. (New) The system of Claim 41, wherein the software program is further operable to convert the $P \times 1$ surface condition of the first surface into the $N \times M$ surface condition by generating an $N \times M$ surface condition to replace the $P \times 1$ surface condition.

44. (New) The system of Claim 41, wherein the software program is further operable to convert the $P \times 1$ surface condition of the first surface into the $N \times M$ surface condition by generating an $N \times M$ surface condition defined by the third and fourth curves such that the third and fourth curves are defined by mathematical equations all having an order no greater than mathematical equations defining the first and second curves.

45. (New) The system of Claim 41, wherein the software program is further operable to process the first curves and the second curve so that each one of the first curves and the second curve are compatible with each other of the first curves and the second curve.

46. (New) The system of Claim 41, wherein the software program is further operable to modify additional surfaces having the first $N \times M$ surface condition.